PROF. STUBBS ON HAWAIIAN SUGARS

Continuation of His Exhaustive Lecture on Local Plantation Affairs Before a Southern Audience.

(Continued from Previous Issues.)

These corporations are being divided into shares which are marketable under the provisions of their charters, and are subject to daily fluctuations upon the stock exchange of Honolulu, which bear no necessary relation to the state or value of the estate. These corporations live or sink solely by sugar. They must pay their way or close up. When the McKinley bill passed Congress several years ago, placing raw sugars on the free list and giving a bounty to the domestic producers, thus depriving Hawaii of the benefit of the reciprocity treaty, the great agencies and plantations of Hawaii tottered to their fall. Some fell; others were saved by outside capital. A labor crisis, a prolonged quarantine, or a suspension of ocean traffic would work sore disaster even to those estates which have enormous capital, since at no time is there a superabundance of food for man or beast in the pastures of the plantations or the stores of Honolulu.

To maintain the fertility of the soil where only one crop is grown (for they have no rotation, no restorative crop), and that in maximum quantities, requires rare sagacity. On the estate the one thought is how to keep the average quality of land from going out of cultivation. How can expenses be reduced and crops enhanced, so as to secure the largest dividends on stock, is the object of their existence.

Such estates are destructive of family ties and home comforts, preferring always to employ single men, and objecting seriously to women and children. Hence adaptability of Asiatics to such work, who serve their contract time and then return to China or Japan, or rush to the cities or towns to engage in urban pursuits. Such estates are not conducive to permanent settlers, steady yeomanry, prosperous farmers, which are regarded as the pride and reliance of every nation. In the islands a strong antagonism prevails against such estates, and a demand is made that the large areas owned by the Crown (now United States Government) and now leased by the sugar corporations, shall be divided and subdivided into homesteads at the expiration of the lease, for occupancy by permanent farmers or gardeners. On the contrary, it may be stated that there is probably no industry besides sugar that can give such enormous acre yields in money and bear the heavy cost of expensive irrigation plants, steam plows, etc. The exports of the islands were last year, $22,628,741, of which over $22,000,000 were furnished by sugar. Again, these large acre yields give enormous taxable values to the lands, from which public resources are raised for public improvements, public schools, roads, etc. It is, therefore, a question of serious moment whether the present conditions will be improved by the establishment of small farmers, market gardeners, dairymen, stock breeders on the islands.

Few corporations own their entire plantations. A large part of the lands now in sugar are held under long lease. About one-third of them are old Crown lands, now public lands for the United States, and when these leases expire there will be quite a contest over future disposition of them.

Under the Kingdom and Republic of Hawaii, there was a treaty between Japan and Portugal which permitted what was called "contract labor," and hence all Japanese and Portuguese on the island were imported under these treaties. There never was any treaty with China, and the Chinese came of their own accord, often in numbers beyond requirement. Annexation has changed all this. By abrogating contract labor the Japanese and Portuguese were liberated, and by the Geary law, Chinese are excluded from Uncle Sam's domain. This has brought about a labor crisis which the planters are trying to meet by introducing the Southern and Porto Rican negroes. Whether they will succeed in securing enough of them, and, if they do whether the negroes will prove of any value as laborers in the islands, are questions yet to be settled.

A word about the natives, and we are through. They are rapidly disappearing. The tendency of the savage races to disappear when brought in contact with civilization has been much discussed. Among many native peoples the Malthusian doctrine does not hold true. Even prior to contact with the whites, and amid a plentiful food supply, they barely hold their own in numbers or diminish, and this in some cases apart from the results of war and the practice of infanticide. Contact with civilization commonly accentuates this process of decay where it is present, and often introduces it where it was not found before. Cook estimated the number of Hawaiians, in 1778, at 400,000 and this view has been confirmed by competent observers, among the early residents, basing their judgment on the extensive architectural and other remains everywhere existing. Vancouver noted an apparent depopulation between his first and last visits. In 1823 the missionaries estimated the numbers at 142,000. Today they number about 25,000.

The movement of population, apart from the effects of infanticide, human sacrifice, pestilence and famine, is determined by the ratio of fecundity to viability, or birth rate to death rate. Ever since the Hawaiians have been known to civilization, the birth rate has been low and death rate high. Many causes have been assigned for the small birth rate, which need not be discussed here. The causes for the high death rate are more easily determined. Those now operating are, infectious and contagious diseases, excessive use of alcoholic drinks, change of physical and psychical habit, leprosy and kahuna practice.

It can be predicted with certainty that the pure-blood native will be a steadily diminishing factor in his own country for only a few more years, that the part Hawaiians will increase in numbers for a time and then gradually disappear as a separable element.

Since annexation the Chinese are excluded directly, and the Japanese indirectly, under our contract laws. Therefore the number of Asiatics will gradually diminish on the islands. The islands must therefore be peopled with Europeans or Americans, if the population is to be maintained. Labor to make sugar must be had, and the American negro or the white man must supply it, provided it is found that the latter can work under tropical conditions, with a fair degree of comfort and efficiency, and the industry can afford to pay attractive wages. These are now the dominant social questions of the islands, and years will be required for their solution.

It has clearly been shown that hygienic habits and sanitary conditions have greatly lowered the mortality of Europeans in tropical countries. It has been further shown that there is no deterioration of European stock by long residence in the tropics. It is believed also that field labor in the tropics can be borne as easily by the white as by any other race. Temperature taken by itself, whether high or low, cannot repel or overwhelm a Caucasian. Malaria is as fatal to colored races as it is to white.

Again, a distinction must always be made among European peoples as concerns their facility of acclimatization in hot regions, the Dagos, as in Louisiana, Spaniards in Cuba, and Central and South America, Portuguese in Hawaii, and the French in Reunion.

Lastly, it will not do to lump all tropical countries together. Isothermal lines must be reckoned as well as parallels of latitude, and differences of location, insular, continental, coastwise, interior; also altitude, humidity, rainfall, soil and flora, must all be considered.

It is ignorance to place Honolulu in the same climatic class with Timbuctoo or Bombay, though occupying nearly the same positions relative to the equator.

White labor may yet dominate Hawaii and make it truly the "Paradise of the Pacific."

Scientific Miscellany

No historic record shows when the constellations were mapped out, says Professor Simon Newcomb, but the names given indicate that it was in the heroic age. No map extant gives the exact placing of the figures by the ancients, although Ptolemy has designated as precisely as he could the positions of particular stars on the supposed body of each hero, goddess and animal. The figures could not have covered the entire heavens, and in order that every star may belong to some constellation, modern astronomers have marked out irregular patches, each including the entire figure recognized of old. The outlines are still so inexact, however, that a single star may be placed by two astronomers in two constellations. Dr. Gould has tried to remedy the confusion in the southern hemisphere by changing the boundaries of the constellations to straight lines running east and west and north and south, but this arrangement has the objection that the direction of the lines will change, owing to precession. Astronomers generally now recognize eighty-nine constellations in the entire heavens, the ancient southern Argo being counted as four distinct constellations.

Copper poisoning is becoming quite common, according to Dr. H. A. Kurth, although it is not always recognized. The first symptoms are dyspepsia, anaemia and nervousness and irritability, the patient soon becoming emaciated, losing strength, and acquiring a drawn, anxious expression about the mouth. If working in copper is continued, the case usually goes from bad to worse, although some persons acquire a toleration of the poison. No specific is known, and the practical remedy is change of occupation.

Rails in tunnels have been found by an English engineer to lose sometimes nearly 4 per cent of their weight yearly, those most affected containing an excess of sulphur. In north and south rails, magnetism increases the corrosive action of the moist vapors of the tunnel.

A German prize of $250 has been offered for an effective substitute for benzine or for means of lessening its dangers.

The ores of our mines were probably deposited by circulating waters. Dr. C. R. Van Hise finds that the weight of rocks must close all cavities at a depth of 20,000 meters, and in most rocks at half that depth, so that the circulation of water and formation of ore deposits must be almost entirely confined to a thickness of five or six miles of the earth's crust. Any body of ore may have been left by water in its descent from the surface, in its lateral flow, or in its ascent, where it has been deflected upward. Reasons are found for believing that the first deposits were at the lowest depths by the ascending currents, and that the later deposits by the descending and lateral currents were the richer, and this view is confirmed by the experience that nine mines out of ten are poorer below the 300-meter level than above it, and still poorer below the 600-meter level.

The coldest day at Greenwich Observatory in the last sixty years was January 9, 1841, when the lowest temperature was 4 degrees. In this period of sixty years there were 162 days having a minimum temperature below 20 degrees, the greatest number in any one year having been 14, in 1855, while 1895 came next with 11 such cold days, and 1881 with 10. There were 22 years with no day as cold, the longest period having been the four successive years 1882 to 1885, inclusive. An attempt has been made to associate the very cold days with the sun-spot cycle, and there seems to be a tendency to greater cold before the maximum of sun-spots than after.

In an attempt to solve the problem of the active agent in vaccine virus, Dr. Nakanishi has isolated a bacillus whose cultures resemble the diphtheria bacillus. Inoculations upon animals gave uncertain results. Tried in the arms of children, however, what seemed to be typical vaccine vesicles were produced, and it is concluded that this bacillus is the active agent in vaccine virus and probably also of smallpox.

The total horsepower now expended in electro-chemical industries is estimated at more than 400,000. This gives a yearly production of more than $150,000,000, of which the share of the United States is between 60 and 70 per cent; Germany and France about 10 per cent each, Switzerland about 2 per cent, and England perhaps 1½ per cent.

The increased dread of rats that has arisen from their agency in spreading plague has led J. Danysz to experiment with a new means of extermination. Having isolated a new organism—a short bacillus—that proved occasionally fatal to rats, he has cultivated this organism in broth and on gelatine, repeatedly passing it through rats, and has thus greatly augmented its virulence. Of 200 rats fed on bread steeped in a broth culture, 80 died within three weeks. In a practical trial in a store and in some stables, a great decrease in the number of rats was apparent after the first scattering of the disease germs.

An exhaustive study of the metals that may be used for pipes and containers for petroleum and rapeseed oils and acetic acid has been made by Herr Garvalowsky. Crude petroleum is found to have no action on copper, nickel, aluminum, tin and iron, but may affect zinc and lead. For purified petroleum, lead, copper, iron, brass, nickel, tin and argentan are suitable, aluminum and zinc being less so, and phosphor bronze wholly unfit. For rapeseed oil mills, lead, iron, nickel and aluminum are recommended, zinc, tin, brass, argentan, copper-bronze and phosphor-bronze being excluded. In fermentation processes, tin, phosphor-bronze, lead, nickel and argentan may be used, but no iron, aluminum or zinc. Acetic acid should come in contact only with nickel, aluminum and tin.

Electric smelting is a development that has been forced upon Swiss metallurgists by the scarcity of coal. Hematite ore from the Bernese Oberland, near Meiningen, is to be transported by an aerial ropeway to the village of Innert Kirchen, where the electric smelter will be established. A concession has been obtained, permitting the use of 60,000 horsepower from the river Aar for generating the current required.

Paris is stated to have a characteristic odor, which is perceptible in certain parts of the city, especially in the evening. It is described as a smell of heated organic matter, and Government inspectors found it to persist after certain sanitary improvements had been made. It has been traced at last to the manufacture of superphosphates. The nose seems to be insensible to these in quantity, the odor appearing only at a distance giving sufficient dilution.

A new coffee is puzzling the scientists of the Paris Academy. It grows wild in an island off the coast of Africa, and its striking peculiarity is that it is entirely without caffeine, to which ordinary coffee owes its excitant properties. A consequent advantage is that it may be taken as a beverage at night without risk of insomnia. The botanical characteristics are practically those of ordinary coffee, but there is a distinct difference in chemical composition, and distinguished German and French botanists have been unable to decide whether it belongs to the same species as ordinary coffee, or should rank as a new species. Ordinary coffee growing on the same island contains 1.3 per cent of caffeine.